

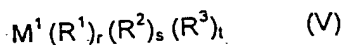
new set of claims
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We claim:

1. A process for preparing a catalyst for olefin polymerization which is obtainable by bringing

5 A) at least one organic transition metal compound,

B) a mixture of at least two different organo metallic compounds of formula (V),



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where

M^1 is an alkali metal, an alkaline earth metal or a metal of group 13 of the Periodic Table,

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R^1 is hydrogen, C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, halo- C_1 - C_{10} -alkyl, halo- C_6 - C_{15} -aryl, C_7 - C_{40} -arylalkyl, C_7 - C_{40} -alkylaryl, C_1 - C_{10} -alkoxy or halo- C_7 - C_{40} -alkylaryl, halo- C_7 - C_{40} -arylalkyl or halo- C_1 - C_{10} -alkoxy,

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R^2 and R^3 are each hydrogen, C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, halo- C_1 - C_{10} -alkyl, halo- C_6 - C_{15} -aryl, C_7 - C_{40} -arylalkyl, C_7 - C_{40} -alkylaryl, C_1 - C_{10} -alkoxy or halo- C_7 - C_{40} -alkylaryl, halo- C_7 - C_{40} -arylalkyl or halo- C_1 - C_{10} -alkoxy,

r is an integer from 1 to 3

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and

s and t are integers from 0 to 2, where the sum $r+s+t$ corresponds to the valence of M^1 ,

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and

C) at least one cation-forming compound

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into contact with one another, wherein the organic transition metal compound A) is firstly combined with the mixture of the organo metallic compounds B).

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2. A process for preparing a catalyst for olefin polymerization as claimed in claim 1, wherein

D) at least one support

5 is used as further component.

3. A process for preparing a catalyst for olefin polymerization as claimed in claim 1 or 2, wherein

10 E) at least one Lewis base

is used as further component.

4. A process for preparing a catalyst for olefin polymerization as claimed in any of claims 1 to 15 3, wherein the cation-forming compound is a strong uncharged Lewis acid, an ionic compound having a Lewis-acid cation, an ionic compound containing a Brønsted acid as cation or a compound of the aluminoxane type.

5. A process for preparing a catalyst for olefin polymerization as claimed in any of claims 1 to 20 4, wherein the cation-forming compound is obtained during the preparation of the catalyst by reaction of a compound having at least one functional group containing active hydrogen with an organometallic compound.

6. A process for preparing a catalyst for olefin polymerization as claimed in claim 5, wherein 25 the compound having at least one functional group containing active hydrogen is a hydroxyl-containing compound.

7. A process for preparing a catalyst for olefin polymerization as claimed in claim 6, wherein 30 the hydroxyl groups are bound to an element of main group 13, 14 or 15 of the Periodic Table.

8. The use of a catalyst prepared as claimed in any of claims 1 to 7 for the polymerization of olefins.

35 9. A catalyst obtainable by a process as claimed in any of claims 1 to 7.

10. A process for the polymerization of olefins using a catalyst as claimed in claim 9.

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